

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY
(Chapter I of the Patent Cooperation Treaty)

(PCT Rule 44bis)

Applicant's or agent's file reference 200406F-0404	FOR FURTHER ACTION		See item 4 below
International application No. PCT/JP2004/009035	International filing date (<i>day/month/year</i>) 25 June 2004 (25.06.2004)	Priority date (<i>day/month/year</i>) 27 June 2003 (27.06.2003)	
International Patent Classification (8th edition unless older edition indicated) See relevant information in Form PCT/ISA/237			
Applicant NATIONAL INSTITUTE OF ADVANCED INDUSTRIAL SCIENCE AND TECHNOLOGY			

1. This international preliminary report on patentability (Chapter I) is issued by the International Bureau on behalf of the International Searching Authority under Rule 44 *bis*.1(a).

2. This REPORT consists of a total of 4 sheets, including this cover sheet.

In the attached sheets, any reference to the written opinion of the International Searching Authority should be read as a reference to the international preliminary report on patentability (Chapter I) instead.

3. This report contains indications relating to the following items:

- | | |
|---|---|
| <input checked="" type="checkbox"/> Box No. I | Basis of the report |
| <input type="checkbox"/> Box No. II | Priority |
| <input type="checkbox"/> Box No. III | Non-establishment of opinion with regard to novelty, inventive step and industrial applicability |
| <input type="checkbox"/> Box No. IV | Lack of unity of invention |
| <input checked="" type="checkbox"/> Box No. V | Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement |
| <input type="checkbox"/> Box No. VI | Certain documents cited |
| <input type="checkbox"/> Box No. VII | Certain defects in the international application |
| <input type="checkbox"/> Box No. VIII | Certain observations on the international application |

4. The International Bureau will communicate this report to designated Offices in accordance with Rules 44bis.3(c) and 93bis.1 but not, except where the applicant makes an express request under Article 23(2), before the expiration of 30 months from the priority date (Rule 44bis .2).

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland	Date of issuance of this report 24 April 2006 (24.04.2006)
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PATENT COOPERATION TREATY

TRANSLATION

From the
INTERNATIONAL SEARCHING AUTHORITY

PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

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To:

Date of mailing
(day/month/year)

Applicant's or agent's file reference

200406F-0404

FOR FURTHER ACTION

See paragraph 2 below

International application No.

PCT/JP2004/009035

International filing date (day/month/year)

25.06.2004

Priority date (day/month/year)

27.06.2003

International Patent Classification (IPC) or both national classification and IPC

Applicant

NATIONAL INSTITUTE OF ADVANCED INDUSTRIAL SCIENCE AND TECHNOLOGY

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA/IP

Authorized officer

Facsimile No.

Telephone No.

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/JP2004/009035

Box No. I Basis of this opinion

1. With regard to the language, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
☐ This opinion has been established on the basis of a translation from the original language into the following language _____, which is the language of a translation furnished for the purposes of international search (under Rule 12.3 and 23.1(b)).
2. With regard to any nucleotide and/or amino acid sequence disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
 - a. type of material
☒ a sequence listing
☐ table(s) related to the sequence listing
 - b. format of material
☐ in written format
☒ in computer readable form
 - c. time of filing/furnishing
☐ contained in the international application as filed.
☒ filed together with the international application in computer readable form.
☐ furnished subsequently to this Authority for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table(s) relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

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WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/JP2004/009035

Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)

Claims 1-7

YES

Claims

NO

Inventive step (IS)

Claims

YES

Claims 1-7

NO

Industrial applicability (IA)

Claims

YES

Claims

NO

2. Citations and explanations:

Document 1: Proc. Natl. Acad. Sci. U.S.A., 1996, 93(15), pages 7470-4

Document 2: Mol. Plant Microbe Interact., 2002, 15(9), pages 947-55

Document 3: EMBO J., 1995, 14(23), pages 5762-72

The inventions of claims 1-2 and 4-7 do not appear to involve an inventive step over documents 1-2 cited in the ISR.

Documents 1-2 describe methods of manufacturing plant viruses wherein the 2b region of the CMV Q strain (CMV belonging to subgroup II) RNA2 molecule is replaced by a 2b region derived from a cucumovirus of another species (Document 1: TAV, Document 2: WAI-CMV).

Comparing the invention of claim 1 of this application with the inventions described in documents 1-2, the difference is that while in this application part of the 2b region of the original virus is deleted and an exogenous gene insertion site is inserted into that part of the sequence, in documents 1-2 all of the 2b region of the original virus is replaced by an endogenous gene using PCR or the like.

Introducing an exogenous gene introduction site at a target location when inserting an exogenous gene at that target location was a well-known technique when this application was filed.

Since the inventions described in documents 1-2 attempt to cause expression of the exogenous 2b gene without expression of the 2b gene of the original virus, a person skilled in the art could easily have conceived of deleting the 2b region of the original virus, providing an desired exogenous gene introduction site at the location of the deletion and introducing the endogenous gene. Selecting the scope of the 2b region deletion so that the 2b gene of the original virus does not function and applying the method to CMV from another species are matters that can be accomplished as necessary by a person skilled in the art.

The invention of claim 3 does not appear to involve an inventive step over documents 1-3 cited in the ISR.

Document 3 describes a Δ 2b variant designed to allow 2a gene function while eliminating 2b gene expression by means of a point mutation which introduces a stop codon near the N terminal of ORF 2b without altering the amino acid sequence of ORF 2a.

Since the inventions described in documents 1-3 all involve techniques for mutating CMV so that the 2b gene is not expressed, it would be easy for a person skilled in the art to adopt the mutation method described in document 3 as a method for eliminating expression of the 2b gene of the original CMV.

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